

## CLAIMS

1. A phase synchronous multiple LC tank oscillator comprising:  
a plurality of oscillator stages configured to oscillate synchronously wherein the phase of each of the plurality of oscillator stages is substantially the same.
- 5 2. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein the plurality of oscillator stages includes four oscillator stages, each oscillator stage having two inputs and two outputs and wherein each of the plurality of oscillator stages outputs its own output signal to two adjacent oscillator stages and also receives inputs from the two adjacent oscillator stages.
- 10 3. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein each of the plurality of oscillator stages has two inputs and two outputs and wherein each of the plurality of oscillator stages outputs its own output signal to two adjacent oscillator stages and also receives inputs from the two adjacent oscillator stages
- 15 4. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein the plurality of oscillator stages includes four oscillators each oscillator stage a plurality of inputs and a plurality of outputs wherein each of the plurality of oscillator stages outputs its output signal to other oscillator stages in the plurality of oscillator stages and also receives inputs from the other oscillator stages in a manner that causes the oscillator stages to oscillate synchronously.
- 20 5. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein the plurality of oscillator stages includes an oscillator stage having a first output that is connected to an input of a first adjacent oscillator stage and a second output that is connected to an input of a second oscillator stage and wherein the oscillator stage further includes a first input that is connected to an output of the first adjacent oscillator stage
- 25 and a second input that is connected to an output the of the second adjacent oscillator stage.
- 30 6. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein the plurality of oscillator stages includes four oscillators each oscillator stage a plurality of inputs and a plurality of outputs wherein each of the plurality of oscillator stages outputs its output signal to other oscillator stages in the plurality of oscillator stages and also

receives inputs from the other oscillator stages in a manner that causes the oscillator stages to oscillate synchronously and wherein each of the oscillator stages include corresponding inductors that are arranged to be mutually inductive.

7. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein  
5 each of the plurality of oscillator stages has greater than two inputs.
8. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein each of the plurality of oscillator stages has greater than two outputs.
9. A phase synchronous multiple LC tank oscillator as recited in claim 1 wherein each of the plurality of oscillator stages includes more than four oscillator stages.

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